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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,380	06/27/2003	Toshiyuki Miyamoto	50212-512	5140

20277 7590 07/25/2006

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EXAMINER
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HUGHES, DEANDRA M

ART UNIT	PAPER NUMBER
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3663

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/607,380

Applicant(s)

MIYAMOTO ET AL.

Examiner

Deandra M. Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 20-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-21 and 23-31 is/are rejected.
- 7) ☐ Claim(s) 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Applicant's amendments have overcome the 112-1<sup>st</sup> paragraph rejection of claims 22 and 26-29, as is outlined in the office action dated 01/11/2006.
2. Claims 23-29 rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for 4,680 GHz, does not reasonably provide enablement for optical frequency spacing of more than 4,680 GHz, e.g., 10,000 GHz. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 20-21, 23-25 and 30-31 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 20, 23, 25, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Akasaka (US 6,292,288 published Sept. 18, 2001).

With regard to claim 20, Akasaka discloses:

- a transmitter (col. 14, line 12) transmitting widely spaced channel light with an optical frequency spacing of 2.5 THz (fig. 63; col. 12, lines 45-50);

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- an optical fiber transmission line transmitting the signal light (col. 14, line 12);
- an optical fiber for Raman amplification constituting at least part of said optical fiber transmission line (col. 14, lines 10-11; see also fig. 1, #2);
- SRS means which Raman amplifiers the signal light in said optical fiber for Raman amplification, by supplying Raman amplification pumping light (col. 3, lines 37-38; see also fig. 1, #1);
- wherein the Raman amplification pumping light includes a plurality of pump channels (e.g. fig. 16, each central wavelength is a different pumping channel) the plurality of pumping channels are assigned to the same part of said optical transmission line (the pump module , #1, of fig. 1 is multiplexed into the fiber via #13).

With regard to claim 23, Akasaka discloses:

- an optical frequency of each pumping channel contained in the pumping light is so set as to locate a peak of Raman gain at an optical frequency different from an optical frequency of each signal channel contained in the signal light (this is inherent to Raman amplification; further, it is disclosed by Akasaka in fig. 14);
- wherein an optical frequency spacing between adjacent pumping channels in the Raman amplification is 6nm (fig. 12).

With regard to claim 25, fig. 48 discloses negative dispersion transmission line.

With regard to claim 30, Akasaka discloses that at least one of the pumping channels in the Raman amplification pumping light contains a plurality of longitudinal modes (col. 4, lines 65-68).

***Claim Rejections - 35 USC § 103***

6. Claims 21, 24, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akasaka (US 6,292,288 published Sept. 18, 2001) in view of Avallone (US2005/0117839 filed Dec. 27, 2001)

Akasaka does not specifically disclose that the transmitter comprises a directly modulated laser. However, Avallone teaches directly modulated laser transmission signals (paragraph [0086]). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to directly modulated the transmission signal for the advantage of superimposing a traffic signal, as is specifically taught by Avallone in paragraph [0086].

***Allowable Subject Matter***


7. Claims 22 and 26-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims **and** if the 112-1<sup>st</sup> rejection outlined above is overcome.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M. Hughes whose telephone number is 571-272-6982. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Deandra M Hughes  
Primary Examiner  
Art Unit 3663